

WHAT IS CLAIMED IS:

1. A solid image capturing element, comprising:

5 a plurality of vertical shift registers arranged to each correspond to a column of a plurality of light receiving pixels in a matrix arrangement,

a horizontal shift register provided on an output side of the plurality of vertical shift registers, and

10 an output section provided on an output side of the horizontal shift register,

wherein

a reverse conductive semiconductor region is formed over one major surface of one conductive semiconductor substrate,

15 the plurality of light receiving pixels, the plurality of vertical shift registers, the horizontal shift register, and the output section are formed in the semiconductor region, and

20 the concentration of dopants in a portion of the semiconductor region where the output section is formed is higher than the concentration of dopants in another portion of the semiconductor region where the horizontal shift register is formed.

2. The solid image capturing element according to claim 1, further comprising:

25 an output gate formed on the semiconductor substrate at a boundary between the horizontal shift register and the output section.

3. The solid image capturing element according to claim 1,

wherein the concentration of dopants in the portion of the semiconductor region where the horizontal shift register is formed is higher than the concentration of dopants in a still further portion of the semiconductor region where the plurality of light receiving pixels and the plurality of vertical shift registers are formed.

4. A method for manufacturing a solid image capturing element having a plurality of vertical shift registers arranged to each correspond to a column of a plurality of light receiving pixels in a matrix arrangement, a horizontal shift register provided on an output side of the plurality of vertical shift registers, and an output section provided on an output side of the horizontal shift register, comprising:

15 a first step of forming over one major surface of a conductive semiconductor substrate a first reverse conductive semiconductor region having a first dopant concentration;

a second step of forming over the one major surface of the conductive semiconductor substrate a second reverse conductive semiconductor region having a second dopant concentration which is higher than the first dopant concentration; and

20 a third step of forming the horizontal shift register on the first reverse conductive semiconductor region and the output section on the second reverse conductive semiconductor region.

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5. The method for manufacturing a solid image capturing element according to claim 4, further comprising:

a fourth step of forming over the one major surface of the

conductive semiconductor substrate a third reverse conductive semiconductor region having a third dopant concentration which is lower than the first dopant concentration,

wherein

5 at the fourth step, the plurality of light receiving pixels and the plurality of vertical shift registers are formed in the third semiconductor region.

6. The method for manufacturing a solid image capturing element
10 according to claim 4, wherein a dopant is doped in a stepwise manner to the first reverse conductive semiconductor region and the second reverse conductive semiconductor region, and

 doping of the dopant is performed commonly at least once to
 the first reverse conductive semiconductor region, the second
15 reverse conductive semiconductor region, and the third reverse
 conductive semiconductor region.